

10/506997

47876.txt  
SEQUENCE LISTING 0709 Rec'd PCT/PTO 04 SEP 2004

<110> ImClone Systems Incorporated  
<120> Human Antibodies Specific To KDR And Uses Thereof  
<130> 11245/47802  
<140> To Be Assigned  
<141> Herewith...2004-09-03  
<150> PCT/US03/06459  
<151> 2003-03-04  
<150> 60/361,783  
<151> 2002-03-04  
<160> 93  
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 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr  
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 Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45

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 Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe  
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 65 70 75 80

atg gag ttg agg agc ctg aga tct gac gac acg gcc gtg tat tac tgt  
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 336  
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 Arg Val Thr Ile Ser Cys Ser Gly Ser Thr Ser Asn Ile Gly Thr Asn  
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 act gca aac tgg ttc cag cag ctc cca gga acg gcc ccc aaa ctc ctc  
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 Thr Ala Asn Trp Phe Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu  
                  35                         40                         45  
  
 atc cac aat aat aat cag cgg ccc tca ggg gtc cct gac cga ttc tct  
         192  
 Ile His Asn Asn Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
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 Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Gln  
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288

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Ser Leu  
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aat ggc cat tgg gtg ttc ggc gga ggg acc aag ctg acc gtc ctg  
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35 40 45

Ile His Asn Asn Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Gln  
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96

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr

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25

30

agc atg aac tgg gtc cgc cag gct cca ggg aag ggg ctg gag tgg gtc  
 144

Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

tca tcc att agt agt agt agt tac ata tac tac gca gac tca gtg  
 192

Ser Ser Ile Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val  
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Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr  
 65 70 75 80

ctg caa atg aac agc ctg aga gcc gag gac acg gct gtg tat tac tgt  
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Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

gcg aga gtc aca gat gct ttt gat atc tgg ggc caa ggg aca atg gtc  
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acc gtc tca agc

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 35 40 45

Ser Ser Ile Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val  
 50 55 60

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Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
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100 105 110

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Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr  
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tta gcc tgg tac caa cag aaa cct ggc cag gct ccc agg ctc ctc atc  
144

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile  
35 40 45

tat gat tca tcc aac agg gcc act ggc atc cca gcc aga ttc agt ggc  
192

Tyr Asp Ser Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly  
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agt ggg tct ggg aca gac ttc act ctc acc atc agc agc cta gag cct  
240

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro  
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gaa gat ttt gca act tat tac tgt cta cag cat aac act ttt cct ccg  
288

Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Thr Phe Pro Pro  
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Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys

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Tyr Asp Ser Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly  
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro  
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agc atg aac tgg gtc cgc cag gct cca ggg aag ggg ctg gag tgg gtc  
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Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
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288  
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
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Ser Ile Thr Ile Ser Cys Ala Gly Thr Thr Thr Asp Leu Thr Tyr Tyr  
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35 40 45

gtg att tat gac ggc aat aag cgg ccc tca gga gtt tct aat cgc ttc  
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Val Ile Tyr Asp Gly Asn Lys Arg Pro Ser Gly Val Ser Asn Arg Phe  
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tct ggc tcc aag tct ggc aac acg gcc tcc ctg aca atc tct gga ctc  
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Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu  
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288  
Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Val Ser Ser  
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35 40 45

Val Ile Tyr Asp Gly Asn Lys Arg Pro Ser Gly Val Ser Asn Arg Phe  
50 55 60

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu  
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Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Val Ser Ser  
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
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agc atg aac tgg gtc cgc cag gct cca ggg aag ggg ctg gag tgg gtc  
 144

Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
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tca tcc att agt agt agt agt tac ata tac tac gca gac tca gtg  
 192

Ser Ser Ile Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val  
 50 55 60

aag ggc cga ttc acc atc tcc aga gac aac gcc aag gac tca ctg tat  
 240

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asp Ser Leu Tyr  
 65 70 75 80

ctg caa atg aac agc ctg aga gcc gag gac acg gct gtg tat tac tgt  
 288

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

gcg aga gtc aca gat gct ttt gat atc tgg ggc caa ggg aca atg gtc  
 336

Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val  
 100 105 110

acc gtc tca agc  
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Thr Val Ser Ser  
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Ser Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val

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Ser Ser Ile Ser Ser Ser Ser Tyr Ile Tyr Tyr Ala Asp Ser Val  
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Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asp Ser Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
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Ala Arg Val Thr Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val  
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gac aga gtc acc atc act tgt cgg gcg agt cag ggt att agt agt cgg  
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Arg  
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Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
 35 40 45

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 192

Tyr Ala Ala Ser Ser Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly  
 50 55 60

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 240

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
 65 70 75 80

gaa gat ttt gca act tac tat tgt caa cag gct aac agg ttc cct ccg  
 288

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ala Asn Arg Phe Pro Pro

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90

95

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35 40 45

Tyr Ala Ala Ser Ser Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
65 70 75 80

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96

Arg Val Thr Ile Ser Cys Thr Gly Ser His Ser Asn Phe Gly Ala Gly  
20 25 30

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act gat gta cat tgg tac caa cac ctt cca gga aca gcc ccc aga ctc  
144  
Thr Asp Val His Trp Tyr Gln His Leu Pro Gly Thr Ala Pro Arg Leu  
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ctc att cat gga gac agt aat cgg ccc tcc ggg gtc cct gac cga ttc  
192  
Leu Ile His Gly Asp Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
50 55 60

tct ggc tcc agg tct ggc acc tca gcc tcc ctg gcc atc act ggg ctc  
240  
Ser Gly Ser Arg Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu  
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cgg gtt gag gat gag gct gat tat tac tgt cag tcg tat gac tat ggc  
288  
Arg Val Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Tyr Gly  
85 90 95

ctg aga ggt tgg gtg ttc ggc ggc ggg acc aag ctg acc gtc ctt  
333  
Leu Arg Gly Trp Val Phe Gly Gly Thr Lys Leu Thr Val Leu  
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35 40 45

Leu Ile His Gly Asp Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
50 55 60

Ser Gly Ser Arg Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu  
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Leu Arg Gly Trp Val Phe Gly Gly Thr Lys Leu Thr Val Leu  
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gac aga gtc acc atc act tgc cgg gca agt cag aac att aac aac tat  
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Tyr  
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tta aat tgg tat caa cag aaa cca gga aaa gcc cct aag ctc ctg atc  
 144

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
 35 40 45

tat gct gcc tcc act ttg caa agt ggg gtc cca tca agg ttc agt ggc  
 192

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
 50 55 60

agt gga tct ggg aca gat ttc act ctc acc atc acc agc cta cag cct  
 240

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Thr Ser Leu Gln Pro  
 65 70 75 80

gaa gat tct gca act tat tac tgc caa cag tat tcc cgt tat cct ccc  
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Glu Asp Ser Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Arg Tyr Pro Pro  
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act ttc ggc gga ggg acc aag gtg gag atc aca

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Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Thr  
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 20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
 35 40 45

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Thr Ser Leu Gln Pro  
 65 70 75 80

Glu Asp Ser Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Arg Tyr Pro Pro  
 85 90 95

Thr Phe Gly Gly Thr Lys Val Glu Ile Thr  
 100 105

<210> 38  
 <211> 330  
 <212> DNA  
 <213> Human

<400> 38

cag tct gcc ctg act cag cct gcc tcc gtg tct ggg tct cgt gga cag  
 48

Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Arg Gly Gln  
 5 10 15

tcg atc acc ctc tcc tgc acc ggc tcc agc act gat gtg ggt aat tat  
 96

Ser Ile Thr Leu Ser Cys Thr Gly Ser Ser Thr Asp Val Gly Asn Tyr  
 20 25 30

aac tat atc tcc tgg tac caa caa cac cca ggc caa gcc ccc aaa ctc  
 144

Asn Tyr Ile Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu  
 35 40 45

ttg att tac gat gtc act agt cgg ccc tca ggt gtt tct gat cgc ttc  
 192

Leu Ile Tyr Asp Val Thr Ser Arg Pro Ser Gly Val Ser Asp Arg Phe  
 50 55 60

tct ggc tcc aag tca ggc ctc acg gcc tcc ctg acc atc tct gga ctc  
 240

Ser Gly Ser Lys Ser Gly Leu Thr Ala Ser Leu Thr Ile Ser Gly Leu  
 65 70 75 80

cag cct gaa gac gag gct gac tat tac tgc aac tcc tat tct gcc acc

47876.txt

288

Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Ser Ala Thr  
85 90 95

gac act ctt ttt ggc gga ggg acc aag ctg acc gtc cta  
330

Asp Thr Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 39

<211> 110

<212> PRT

<213> Human

) <400> 39

Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Arg Gly Gln  
5 10 15

Ser Ile Thr Leu Ser Cys Thr Gly Ser Ser Thr Asp Val Gly Asn Tyr  
20 25 30

Asn Tyr Ile Ser Trp Tyr Gln Gln His Pro Gly Gln Ala Pro Lys Leu  
35 40 45

Leu Ile Tyr Asp Val Thr Ser Arg Pro Ser Gly Val Ser Asp Arg Phe  
50 55 60

Ser Gly Ser Lys Ser Gly Leu Thr Ala Ser Leu Thr Ile Ser Gly Leu  
65 70 75 80

Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Tyr Ser Ala Thr  
85 90 95

Asp Thr Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 40

<211> 333

<212> DNA

<213> Human

<400> 40

cag gct gtg ctg act cag ccg tcc tca gtg tct ggg gcc cca gga cag  
48

Gln Ala Val Leu Thr Gln Pro Ser Ser Val Ser Gly Ala Pro Gly Gln  
5 10 15

agg gtc acc atc tcc tgc act ggg caa agc tcc aat atc ggg gca gat  
96

Arg Val Thr Ile Ser Cys Thr Gly Gln Ser Ser Asn Ile Gly Ala Asp

## 47876.txt

20

25

30

tat gat gta cat tgg tac cag caa ttt cca gga aca gcc ccc aaa ctc  
 144

Tyr Asp Val His Trp Tyr Gln Gln Phe Pro Gly Thr Ala Pro Lys Leu  
 35 40 45

ctc atc tat ggt cac aac aat cgg ccc tca ggg gtc cct gac cga ttc  
 192

Leu Ile Tyr Gly His Asn Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
 50 55 60

tct ggc tcc aag tct ggc acc tca gtc tcc ctg gtc atc agt ggg ctc  
 240

Ser Gly Ser Lys Ser Gly Thr Ser Val Ser Leu Val Ile Ser Gly Leu  
 65 70 75 80

cag gct gag gat gag gct gat tat tat tgc cag tcc tat gac agc agt  
 288

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser  
 85 90 95

cta agt ggt ttg gta ttc ggc gga ggg acc aag gtg acc gtc cta  
 333

Leu Ser Gly Leu Val Phe Gly Gly Thr Lys Val Thr Val Leu  
 100 105 110

<210> 41

<211> 111

<212> PRT

<213> Human

<400> 41

Gln Ala Val Leu Thr Gln Pro Ser Ser Val Ser Gly Ala Pro Gly Gln  
 5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Gln Ser Ser Asn Ile Gly Ala Asp  
 20 25 30

Tyr Asp Val His Trp Tyr Gln Gln Phe Pro Gly Thr Ala Pro Lys Leu  
 35 40 45

Leu Ile Tyr Gly His Asn Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
 50 55 60

Ser Gly Ser Lys Ser Gly Thr Ser Val Ser Leu Val Ile Ser Gly Leu  
 65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser  
 85 90 95

47876.txt

Leu Ser Gly Leu Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu  
100 105 110

<210> 42

<211> 321

<212> DNA

<213> Human

<400> 42

gac atc cag ttg acc cag tct cca tct tct gtg tct gca tct gtt gga  
48

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
5 10 15

gac agc gtc acc atc act tgt cgg gcg agt cag gat att agc agc tgg  
96

Asp Ser Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Ser Trp  
20 25 30

tta gcc tgg tat caa cag aaa cca ggg gag gcc cct aag ctc ctg atc  
144

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Glu Ala Pro Lys Leu Leu Ile  
35 40 45

tat gct gca tcc ctt ctt caa agt ggg gtc cca tca cgg ttc agc ggc  
192

Tyr Ala Ala Ser Leu Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

agt gga tct ggg aca gat ttc gct ctc act atc aac agc ctg cag cct  
240

Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr Ile Asn Ser Leu Gln Pro  
65 70 75 80

gaa gat ttt gca act tac ttt tgt caa cag gct gac agt ttc cct ccc  
288

Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Ala Asp Ser Phe Pro Pro  
85 90 95

acc ttc ggc caa ggg aca cgg ctg gag att aaa  
321

Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys  
100 105

<210> 43

<211> 107

<212> PRT

<213> Human

<400> 43

47876.txt

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
5 10 15

Asp Ser Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Ser Trp  
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Glu Ala Pro Lys Leu Leu Ile  
35 40 45

Tyr Ala Ala Ser Leu Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr Ile Asn Ser Leu Gln Pro  
65 70 75 80

Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Ala Asp Ser Phe Pro Pro  
85 90 95

Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys  
100 105

<210> 44

<211> 321

<212> DNA

<213> Human

<400> 44

gac atc gag ttg acc cag tct cca tct tcc gtg tct gca tct gtg gga  
48

Asp Ile Glu Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
5 10 15

gac aga gtc acc ctc act tgt cgg gcg agt cag agt att aag agg tgg  
96

Asp Arg Val Thr Leu Thr Cys Arg Ala Ser Gln Ser Ile Lys Arg Trp  
20 25 30

tta gcc tgg tat cag cag aaa cca ggg aag gcc cct agg ctc ctc atc  
144

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile  
35 40 45

tat gct gca tcc act ttg caa agt ggg gtc cca tca agg ttc agc ggc  
192

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

ggt gga tct ggg aca gat ttc act ctc acc atc aac agc ctg cag cct  
240

Gly Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro  
65 70 75 80

gaa gat ttt gca att tac tac tgt caa cag gct aac agt ttc cct ccc  
288

Glu Asp Phe Ala Ile Tyr Tyr Cys Gln Gln Ala Asn Ser Phe Pro Pro  
85 90 95

act ttc ggc cct ggg acc aaa gtg gat atc aaa  
321

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys  
100 105

<210> 45

<211> 107

<212> PRT

<213> Human

<400> 45

Asp Ile Glu Leu Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly  
5 10 15

Asp Arg Val Thr Leu Thr Cys Arg Ala Ser Gln Ser Ile Lys Arg Trp  
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile  
35 40 45

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

Gly Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro  
65 70 75 80

Glu Asp Phe Ala Ile Tyr Tyr Cys Gln Gln Ala Asn Ser Phe Pro Pro  
85 90 95

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys  
100 105

<210> 46

<211> 333

<212> DNA

<213> Human

<400> 46

cag tct gtc gtg acg cag ccg ccc tca gtg tct ggg gcc cca ggg cag  
48

Gln Ser Val Val Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
5 10 15

agg gtc acc atc tcc tgc agt ggg agc agg tcc aac atc ggg gca cac

## 47876.txt

96

Arg Val Thr Ile Ser Cys Ser Gly Ser Arg Ser Asn Ile Gly Ala His  
 20 25 30

144

Tyr Glu Val Gln Trp Tyr Gln Gln Phe Pro Gly Ala Ala Pro Lys Leu  
 35 40 45

192

Leu Ile Tyr Gly Asp Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
 50 55 60

240

Ser Ala Ser His Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu  
 65 70 75 80

288

cag gct gag gat gag gct gat tat tac tgc cag tcg tat gac acc agt  
 85 90 95

333

Leu Arg Gly Pro Val Phe Gly Gly Thr Lys Leu Thr Val Leu  
 100 105 110

<210> 47

<211> 111

<212> PRT

<213> Human

<400> 47

Gln Ser Val Val Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
 5 10 15

Arg Val Thr Ile Ser Cys Ser Gly Ser Arg Ser Asn Ile Gly Ala His  
 20 25 30

Tyr Glu Val Gln Trp Tyr Gln Gln Phe Pro Gly Ala Ala Pro Lys Leu  
 35 40 45

Leu Ile Tyr Gly Asp Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
 50 55 60

Ser Ala Ser His Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu  
 65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Thr Ser

## 47876.txt

85

90

95

Leu Arg Gly Pro Val Phe Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 48

<211> 333

<212> DNA

<213> Human

<400> 48

cag tct gtc gtg acg cag ccg ccc tca gtg tct ggg gcc cca ggg cag  
48

Gln Ser Val Val Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
5 10 15

agg gtc acc atc tcc tgc act ggg agc agc tcc aac atc ggg aca ggt  
96

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Thr Gly  
20 25 30

tat gat gta cat tgg tac cag cag gtt cca gga tca gcc ccc aaa ctc  
144

Tyr Asp Val His Trp Tyr Gln Gln Val Pro Gly Ser Ala Pro Lys Leu  
35 40 45

ctc atc tat gct tac acc aat cgg ccc tca ggg gtc cct gac cga ttc  
192

Leu Ile Tyr Ala Tyr Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
50 55 60

tct ggc tcc aag tct ggc atg tca gcc tcc ctg gtc atc ggt ggt ctc  
240

Ser Gly Ser Lys Ser Gly Met Ser Ala Ser Leu Val Ile Gly Gly Leu  
65 70 75 80

cag gct gag gat gag gct gat tat tac tgc cag tcc ttt gac gac agc  
288

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Phe Asp Asp Ser  
85 90 95

ctg aat ggt ctt gtc ttc gga cct ggg acc tcg gtc acc gtc ctc  
333

Leu Asn Gly Leu Val Phe Gly Pro Gly Thr Ser Val Thr Val Leu  
100 105 110

<210> 49

<211> 111

<212> PRT

<213> Human

&lt;400&gt; 49

Gln Ser Val Val Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
                   5                         10                         15  
  
 Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Thr Gly  
                   20                         25                         30  
  
 Tyr Asp Val His Trp Tyr Gln Gln Val Pro Gly Ser Ala Pro Lys Leu  
                   35                         40                         45  
  
 Leu Ile Tyr Ala Tyr Thr Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
                   50                         55                         60  
  
 Ser Gly Ser Lys Ser Gly Met Ser Ala Ser Leu Val Ile Gly Gly Leu  
                   65                         70                         75                         80  
  
 Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Phe Asp Asp Ser  
                   85                         90                         95  
  
 Leu Asn Gly Leu Val Phe Gly Pro Gly Thr Ser Val Thr Val Leu  
                   100                         105                         110

<210> 50  
 <211> 333  
 <212> DNA  
 <213> Human

&lt;400&gt; 50

cag tct gtg ttg acg cag ccg ccc tca gtg tct ggg gcc cca ggg cag  
   48  
 Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
                   5                         10                         15  
  
 agg gtc acc atc tcc tgc act ggg agc cac tcc aac ttc ggg gca ggt  
   96  
 Arg Val Thr Ile Ser Cys Thr Gly Ser His Ser Asn Phe Gly Ala Gly  
                   20                         25                         30  
  
 act gat gtc cat tgg tac caa cac ctt cca gga aca gcc ccc aga ctc  
   144  
 Thr Asp Val His Trp Tyr Gln His Leu Pro Gly Thr Ala Pro Arg Leu  
                   35                         40                         45  
  
 ctc att cat gga gac act cat cgg ccc tcc ggg gtc gct gac cga ttc  
   192  
 Leu Ile His Gly Asp Thr His Arg Pro Ser Gly Val Ala Asp Arg Phe  
                   50                         55                         60  
  
 tct ggc tcc agg tct ggc gcc tca gcc tcc ctg gcc atc act ggg ctc  
   240

47876.txt

Ser Gly Ser Arg Ser Gly Ala Ser Ala Ser Leu Ala Ile Thr Gly Leu  
65 70 75 80

cgg gtt gag gat gag gct gat tat tac tgt cag tcg tat gac tat ggc  
288

Arg Val Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Tyr Gly

85 90 95

ctg aga ggt tgg gtg ttc ggc ggc ggg acc aag ctg acc gtc ctt  
333

Leu Arg Gly Trp Val Phe Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 51

<211> 111

<212> PRT

<213> Human

<400> 51

Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Ser His Ser Asn Phe Gly Ala Gly  
20 25 30

Thr Asp Val His Trp Tyr Gln His Leu Pro Gly Thr Ala Pro Arg Leu  
35 40 45

Leu Ile His Gly Asp Thr His Arg Pro Ser Gly Val Ala Asp Arg Phe  
50 55 60

Ser Gly Ser Arg Ser Gly Ala Ser Ala Ser Leu Ala Ile Thr Gly Leu  
65 70 75 80

Arg Val Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Tyr Gly  
85 90 95

Leu Arg Gly Trp Val Phe Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 52

<211> 321

<212> DNA

<213> Human

<400> 52

gac atc cag atg acc cag tct cca tct tcc gtg tct gca tct ata gga  
48

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Ile Gly

5

10

15

gac aga gtc acc atc act tgt cgg gcg agt cag ggt att gac aac tgg  
96

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Asn Trp  
20 25 30

tta ggc tgg tat cag cag aaa cct ggg aaa gcc cct aaa ctc ctg atc  
144

Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
35 40 45

tac gat gca tcc aat ttg gac aca ggg gtc cca tca agg ttc agt gga  
192

Tyr Asp Ala Ser Asn Leu Asp Thr Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

agt gga tct ggg aca tat ttt act ctc acc atc agt agc ctg caa gct  
240

Ser Gly Ser Gly Thr Tyr Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala  
65 70 75 80

gaa gat ttt gca gtt tat ttc tgt caa cag gct aaa gct ttt cct ccc  
288

Glu Asp Phe Ala Val Tyr Phe Cys Gln Gln Ala Lys Ala Phe Pro Pro  
85 90 95

act ttc ggc gga ggg acc aag gtg gac atc aaa  
321

Thr Phe Gly Gly Thr Lys Val Asp Ile Lys  
100 105

<210> 53

<211> 107

<212> PRT

<213> Human

<400> 53

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Ile Gly  
5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Asn Trp  
20 25 30

Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
35 40 45

Tyr Asp Ala Ser Asn Leu Asp Thr Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

Ser Gly Ser Gly Thr Tyr Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala

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65

70

75

80

Glu Asp Phe Ala Val Tyr Phe Cys Gln Gln Ala Lys Ala Phe Pro Pro  
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Asp Ile Lys  
100 105

<210> 54

<211> 13

<212> PRT

<213> Human

<400> 54

Thr Gly Ser His Ser Asn Phe Gly Ala Gly Thr Asp Val  
5 10

<210> 55

<211> 7

<212> PRT

<213> Human

<400> 55

Gly Asp Ser Asn Arg Pro Ser  
5

<210> 56

<211> 11

<212> PRT

<213> Human

<400> 56

Gln Ser Tyr Asp Tyr Gly Leu Arg Gly Trp Val  
5 10

<210> 57

<211> 11

<212> PRT

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<400> 57

Arg Ala Ser Gln Asn Ile Asn Asn Tyr Leu Asn  
5 10

<210> 58

<211> 7

<212> PRT

<213> Human

47876.txt

<400> 58

Ala Ala Ser Thr Leu Gln Ser  
5

<210> 59

<211> 9

<212> PRT

<213> Human

<400> 59

Gln Gln Tyr Ser Arg Tyr Pro Pro Thr  
5

<210> 60

<211> 14

<212> PRT

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<400> 60

Thr Gly Ser Ser Thr Asp Val Gly Asn Tyr Asn Tyr Ile Ser  
5 10

<210> 61

<211> 7

<212> PRT

<213> Human

<400> 61

Asp Val Thr Ser Arg Pro Ser  
5

<210> 62

<211> 10

<212> PRT

<213> Human

<400> 62

Asn Ser Tyr Ser Ala Thr Asp Thr Leu Val  
5 10

<210> 63

<211> 14

<212> PRT

<213> Human

<400> 63

Thr Gly Gln Ser Ser Asn Ile Gly Ala Asp Tyr Asp Val His  
5 10

<210> 64  
<211> 7  
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<400> 64

Gly His Asn Asn Arg Pro Ser  
5

<210> 65  
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<400> 65

Gln Ser Tyr Asp Ser Ser Leu Ser Gly Leu Val  
5 10

<210> 66  
<211> 11  
<212> PRT  
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<400> 66

Arg Ala Ser Gln Asp Ile Ser Ser Trp Leu Ala  
5 10

<210> 67  
<211> 7  
<212> PRT  
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<400> 67

Ala Ala Ser Leu Leu Gln Ser  
5

<210> 68  
<211> 9  
<212> PRT  
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<400> 68

Gln Gln Ala Asp Ser Phe Pro Pro Thr

<210> 69  
<211> 11  
<212> PRT  
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<400> 69

Arg Ala Ser Gln Ser Ile Lys Arg Trp Leu Ala  
5 10

<210> 70  
<211> 7  
<212> PRT  
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<400> 70

Ala Ala Ser Thr Leu Gln Ser  
5

<210> 71  
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<400> 71

Gln Gln Ala Asn Ser Phe Pro Pro Thr  
5

<210> 72  
<211> 14  
<212> PRT  
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<400> 72

Ser Gly Ser Arg Ser Asn Ile Gly Ala His Tyr Glu Val Gln  
5 10

<210> 73  
<211> 7  
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<400> 73

Gly Asp Thr Asn Arg Pro Ser  
5

47876.txt

<210> 74  
<211> 11  
<212> PRT  
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<400> 74

Gln Ser Tyr Asp Thr Ser Leu Arg Gly Pro Val  
5 10

<210> 75  
<211> 14  
<212> PRT  
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<400> 75

Thr Gly Ser Ser Ser Asn Ile Gly Thr Gly Tyr Asp Val His  
5 10

<210> 76  
<211> 7  
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<400> 76

Ala Tyr Thr Asn Arg Pro Ser  
5

<210> 77  
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<400> 77

Gln Ser Phe Asp Asp Ser Leu Asn Gly Leu Val  
5 10

<210> 78  
<211> 14  
<212> PRT  
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<400> 78

Thr Gly Ser His Ser Asn Phe Gly Ala Gly Thr Asp Val His  
5 10

<210> 79  
<211> 7

47876.txt

<212> PRT  
<213> Human

<400> 79

Gly Asp Thr His Arg Pro Ser  
5

<210> 80  
<211> 11  
<212> PRT  
<213> Human

<400> 80

Gln Ser Tyr Asp Tyr Gly Leu Arg Gly Trp Val  
5 10

<210> 81  
<211> 11  
<212> PRT  
<213> Human

<400> 81

Arg Ala Ser Gln Gly Ile Asp Asn Trp Leu Gly  
5 10

<210> 82  
<211> 7  
<212> PRT  
<213> Human

<400> 82

Asp Ala Ser Asn Leu Asp Thr  
5

<210> 83  
<211> 9  
<212> PRT  
<213> Human

<400> 83

Gln Gln Ala Lys Ala Phe Pro Pro Thr  
5

<210> 84  
<211> 2351  
<212> DNA  
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&lt;400&gt; 84

ggtaccgag aaagaaccgg ctcccgagtt ctgggcattt cgcccggttc gaggtgcagg  
59

atg cag agc aag gtg ctg ctg gcc gtc gcc ctg tgg ctc tgc gtg gag  
107

Met Gln Ser Lys Val Leu Leu Ala Val Ala Leu Trp Leu Cys Val Glu  
5 10 15

acc cgg gcc gcc tct gtg ggt ttg cct agt gtt tct ctt gat ctg ccc  
155

Thr Arg Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro  
20 25 30

agg ctc agc ata caa aaa gac ata ctt aca att aag gct aat aca act  
203

Arg Leu Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr  
35 40 45

ctt caa att act tgc agg gga cag agg gac ttg gac tgg ctt tgg ccc  
251

Leu Gln Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro  
50 55 60

aat aat cag agt ggc agt gag caa agg gtg gag gtg act gag tgc agc  
299

Asn Asn Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser  
65 70 75 80

gat ggc ctc ttc tgt aag aca ctc aca att cca aaa gtg atc gga aat  
347

Asp Gly Leu Phe Cys Lys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn  
85 90 95

gac act gga gcc tac aag tgc ttc tac cgg gaa act gac ttg gcc tcg  
395

Asp Thr Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser  
100 105 110

gtc att tat gtc tat gtt caa gat tac aga tct cca ttt att gct tct  
443

Val Ile Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser  
115 120 125

gtt agt gac caa cat gga gtc gtg tac att act gag aac aaa aac aaa  
491

Val Ser Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys  
130 135 140

act gtg gtg att cca tgt ctc ggg tcc att tca aat ctc aac gtg tca

539

Thr Val Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser  
145 150 155 160

ctt tgt gca aga tac cca gaa aag aga ttt gtt cct gat ggt aac aga  
587

Leu Cys Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg  
165 170 175

att tcc tgg gac agc aag aag ggc ttt act att ccc agc tac atg atc  
635

Ile Ser Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile  
180 185 190

agc tat gct ggc atg gtc ttc tgt gaa gca aaa att aat gat gaa agt  
683

Ser Tyr Ala Gly Met Val Phe Cys Glu Ala Lys Ile Asn Asp Glu Ser  
195 200 205

tac cag tct att atg tac ata gtt gtc gtt gta ggg tat agg att tat  
731

Tyr Gln Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr  
210 215 220

gat gtg gtt ctg agt ccg tct cat gga att gaa cta tct gtt gga gaa  
779

Asp Val Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu  
225 230 235 240

aag ctt gtc tta aat tgt aca gca aga act gaa cta aat gtg ggg att  
827

Lys Leu Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile  
245 250 255

gac ttc aac tgg gaa tac cct tct tcg aag cat cag cat aag aaa ctt  
875

Asp Phe Asn Trp Glu Tyr Pro Ser Ser Lys His Gln His Lys Lys Leu  
260 265 270

gta aac cga gac cta aaa acc cag tct ggg agt gag atg aag aaa ttt  
923

Val Asn Arg Asp Leu Lys Thr Gln Ser Gly Ser Glu Met Lys Lys Phe  
275 280 285

ttg agc acc tta act ata gat ggt gta acc cgg agt gac caa gga ttg  
971

Leu Ser Thr Leu Thr Ile Asp Gly Val Thr Arg Ser Asp Gln Gly Leu  
290 295 300

tac acc tgt gca gca tcc agt ggg ctg atg acc aag aag aac agc aca  
1019

Tyr Thr Cys Ala Ala Ser Ser Gly Leu Met Thr Lys Lys Asn Ser Thr

## 47876.txt

305	310	315	320
ttt gtc agg gtc cat gaa aaa cct ttt gtt gct ttt gga agt ggc atg			
1067			
Phe Val Arg Val His Glu Lys Pro Phe Val Ala Phe Gly Ser Gly Met			
325		330	335
gaa tct ctg gtg gaa gcc acg gtg ggg gag cgt gtc aga atc cct gcg			
1115			
Glu Ser Leu Val Glu Ala Thr Val Gly Glu Arg Val Arg Ile Pro Ala			
340		345	350
aag tac ctt ggt tac cca ccc cca gaa ata aaa tgg tat aaa aat gga			
1163			
Lys Tyr Leu Gly Tyr Pro Pro Pro Glu Ile Lys Trp Tyr Lys Asn Gly			
355		360	365
ata ccc ctt gag tcc aat cac aca att aaa gcg ggg cat gta ctg acg			
1211			
Ile Pro Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr			
370		375	380
att atg gaa gtg agt gaa aga gac aca gga aat tac act gtc atc ctt			
1259			
Ile Met Glu Val Ser Glu Arg Asp Thr Gly Asn Tyr Thr Val Ile Leu			
385		390	395
400			
acc aat ccc att tca aag gag aag cag agc cat gtg gtc tct ctg gtt			
1307			
Thr Asn Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val			
405		410	415
gtg tat gtc cca ccc cag att ggt gag aaa tct cta atc tct cct gtg			
1355			
Val Tyr Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val			
420		425	430
430			
gat tcc tac cag tac ggc acc act caa acg ctg aca tgt acg gtc tat			
1403			
Asp Ser Tyr Gln Tyr Gly Thr Thr Gln Thr Leu Thr Cys Thr Val Tyr			
435		440	445
445			
gcc att cct ccc ccg cat cac atc cac tgg tat tgg cag ttg gag gaa			
1451			
Ala Ile Pro Pro His His Ile His Trp Tyr Trp Gln Leu Glu Glu			
450		455	460
460			
gag tgc gcc aac gag ccc agc cat gct gtc tca gtg aca aac cca tac			
1499			
Glu Cys Ala Asn Glu Pro Ser His Ala Val Ser Val Thr Asn Pro Tyr			
465		470	475
480			

## 47876.txt

cct tgt gaa gaa tgg aga agt gtg gag gac ttc cag gga gga aat aaa  
 1547  
 Pro Cys Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys  
 485 490 495  
  
 att gaa gtt aat aaa aat caa ttt gct cta att gaa gga aaa aac aaa  
 1595  
 Ile Glu Val Asn Lys Asn Gln Phe Ala Leu Ile Glu Gly Lys Asn Lys  
 500 505 510  
  
 act gta agt acc ctt gtt atc caa gcg gca aat gtg tca gct ttg tac  
 1643  
 Thr Val Ser Thr Leu Val Ile Gln Ala Ala Asn Val Ser Ala Leu Tyr  
 515 520 525  
  
 aaa tgt gaa gcg gtc aac aaa gtc ggg aga gga gag agg gtg atc tcc  
 1691  
 Lys Cys Glu Ala Val Asn Lys Val Gly Arg Gly Glu Arg Val Ile Ser  
 530 535 540  
  
 ttc cac gtg acc agg ggt cct gaa att act ttg caa cct gac atg cag  
 1739  
 Phe His Val Thr Arg Gly Pro Glu Ile Thr Leu Gln Pro Asp Met Gln  
 545 550 555 560  
  
 ccc act gag cag gag agc gtg tct ttg tgg tgc act gca gac aga tct  
 1787  
 Pro Thr Glu Gln Glu Ser Val Ser Leu Trp Cys Thr Ala Asp Arg Ser  
 565 570 575  
  
 acg ttt gag aac ctc aca tgg tac aag ctt ggc cca cag cct ctg cca  
 1835  
 Thr Phe Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro  
 580 585 590  
  
 atc cat gtg gga gag ttg ccc aca cct gtt tgc aag aac ttg gat act  
 1883  
 Ile His Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr  
 595 600 605  
  
 ctt tgg aaa ttg aat gcc acc atg ttc tct aat agc aca aat gac att  
 1931  
 Leu Trp Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile  
 610 615 620  
  
 ttg atc atg gag ctt aag aat gca tcc ttg cag gac caa gga gac tat  
 1979  
 Leu Ile Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr  
 625 630 635 640  
  
 gtc tgc ctt gct caa gac agg aag acc aag aaa aga cat tgc gtg gtc  
 2027

47876.txt

Val Cys Leu Ala Gln Asp Arg Lys Thr Lys Lys Arg His Cys Val Val  
645 650 655

agg cag ctc aca gtc cta gag cgt gtg gca ccc acg atc aca gga aac  
2075

Arg Gln Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn  
660 665 670

ctg gaa aat cag acg aca agt att ggg gaa agc atc gaa gtc tca tgc  
2123

Leu Glu Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys  
675 680 685

acg gca tct ggg aat ccc cct cca cag atc atg tgg tat aaa gat aat  
2171

Thr Ala Ser Gly Asn Pro Pro Gln Ile Met Trp Phe Lys Asp Asn  
690 695 700

gag acc ctt gta gaa gac tca ggc att gta ttg aag gat ggg aac cgg  
2219

Glu Thr Leu Val Glu Asp Ser Gly Ile Val Leu Lys Asp Gly Asn Arg  
705 710 715 720

aac ctc act atc cgc aga gtg agg aag gag gac gaa ggc ctc tac acc  
2267

Asn Leu Thr Ile Arg Arg Val Arg Lys Glu Asp Glu Gly Leu Tyr Thr  
725 730 735

tgc cag gca tgc agt gtt ctt ggc tgt gca aaa gtg gag gca ttt ttc  
2315

Cys Gln Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe  
740 745 750

ata ata gaa ggt gcc cag gaa aag acg aac ttg gaa  
2351

Ile Ile Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu  
755 760

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<212> PRT  
<213> Human

<400> 85

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5 10 15

Thr Arg Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro  
20 25 30

Arg Leu Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr

## 47876.txt

35

40

45

Leu Gln Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro  
 50 55 60

Asn Asn Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser  
 65 70 75 80

Asp Gly Leu Phe Cys Lys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn  
 85 90 95

Asp Thr Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser  
 100 105 110

Val Ile Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser  
 115 120 125

Val Ser Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys  
 130 135 140

Thr Val Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser  
 145 150 155 160

Leu Cys Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg  
 165 170 175

Ile Ser Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile  
 180 185 190

Ser Tyr Ala Gly Met Val Phe Cys Glu Ala Lys Ile Asn Asp Glu Ser  
 195 200 205

Tyr Gln Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr  
 210 215 220

Asp Val Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu  
 225 230 235 240

Lys Leu Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile  
 245 250 255

Asp Phe Asn Trp Glu Tyr Pro Ser Ser Lys His Gln His Lys Lys Leu  
 260 265 270

Val Asn Arg Asp Leu Lys Thr Gln Ser Gly Ser Glu Met Lys Lys Phe  
 275 280 285

Leu Ser Thr Leu Thr Ile Asp Gly Val Thr Arg Ser Asp Gln Gly Leu  
 290 295 300

Tyr Thr Cys Ala Ala Ser Ser Gly Leu Met Thr Lys Lys Asn Ser Thr  
 305 310 315 320

## 47876.txt

Phe Val Arg Val His Glu Lys Pro Phe Val Ala Phe Gly Ser Gly Met  
325 330 335

Glu Ser Leu Val Glu Ala Thr Val Gly Glu Arg Val Arg Ile Pro Ala  
340 345 350

Lys Tyr Leu Gly Tyr Pro Pro Glu Ile Lys Trp Tyr Lys Asn Gly  
355 360 365

Ile Pro Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr  
370 375 380

Ile Met Glu Val Ser Glu Arg Asp Thr Gly Asn Tyr Thr Val Ile Leu  
385 390 395 400

Thr Asn Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val  
405 410 415

Val Tyr Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val  
420 425 430

Asp Ser Tyr Gln Tyr Gly Thr Thr Gln Thr Leu Thr Cys Thr Val Tyr  
435 440 445

Ala Ile Pro Pro Pro His His Ile His Trp Tyr Trp Gln Leu Glu Glu  
450 455 460

Glu Cys Ala Asn Glu Pro Ser His Ala Val Ser Val Thr Asn Pro Tyr  
465 470 475 480

Pro Cys Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys  
485 490 495

Ile Glu Val Asn Lys Asn Gln Phe Ala Leu Ile Glu Gly Lys Asn Lys  
500 505 510

Thr Val Ser Thr Leu Val Ile Gln Ala Ala Asn Val Ser Ala Leu Tyr  
515 520 525

Lys Cys Glu Ala Val Asn Lys Val Gly Arg Gly Glu Arg Val Ile Ser  
530 535 540

Phe His Val Thr Arg Gly Pro Glu Ile Thr Leu Gln Pro Asp Met Gln  
545 550 555 560

Pro Thr Glu Gln Glu Ser Val Ser Leu Trp Cys Thr Ala Asp Arg Ser  
565 570 575

Thr Phe Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro  
580 585 590

47876.txt

Ile His Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr  
595 600 605

Leu Trp Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile  
610 615 620

Leu Ile Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr  
625 630 635 640

Val Cys Leu Ala Gln Asp Arg Lys Thr Lys Lys Arg His Cys Val Val  
645 650 655

Arg Gln Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn  
660 665 670

Leu Glu Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys  
675 680 685

Thr Ala Ser Gly Asn Pro Pro Pro Gln Ile Met Trp Phe Lys Asp Asn  
690 695 700

Glu Thr Leu Val Glu Asp Ser Gly Ile Val Leu Lys Asp Gly Asn Arg  
705 710 715 720

Asn Leu Thr Ile Arg Arg Val Arg Lys Glu Asp Glu Gly Leu Tyr Thr  
725 730 735

Cys Gln Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe  
740 745 750

Ile Ile Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu  
755 760

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<211> 20

<212> DNA

<213> Artificial Sequence

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<223> amplification primer for VEGF

<400> 86

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20

<210> 87

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<212> DNA

<213> Artificial Sequence

<220>

47876.txt

<223> amplification primer for VEGF

<400> 87

cctggtgaga gatctggttc

20

<210> 88

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> amplification primer for Flt-1

<400> 88

tttgtgattt tggccttgc

19

<210> 89

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> amplification primer for Flt-1

<400> 89

caggctcatg aacttgaaag c

21

<210> 90

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> amplification primer for KDR

<400> 90

gtgaccaaca tggagtcgtg

20

<210> 91

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

47876.txt

<223> amplification primer for KDR

<400> 91

ccagagattc catgccactt

20

<210> 92

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> amplification primer for KDR

<400> 92

tcatgttga gaccttcaa

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<210> 93

<211> 19

<212> DNA

<213> Artificial Sequence

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<223> amplification primer for KDR

<400> 93

gtcttgcggt atgtccacg

19